

**LITHOGRAPHIC FABRICATION OF PHASE MASK FOR FIBER
BRAGG GRATINGS****ABSTRACT OF THE DISCLOSURE**

The invention provides masks that form fiber Bragg gratings (FBGs) in optical fibers without stitching errors from re-scaling or re-positioning. The invention feathers the pixels of the mask lines by adding, removing, and/or displacing one or more pixels from the edges of the bars and spaces of the mask. The feathering of pixels will affect the FBG being written into the fiber. The feathering operates to shift the effective edge of the bars. This allows the achievement of much finer resolution FBGs than the pixel size of the mask.

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